

Serial No. 10/532,259
Reply dated April 20, 2010
Reply to Final Office Action of January 21, 2010

PATENT
PF020145
Customer No. 24498

Remarks/Arguments

Claim Rejections – 35 USC 103:

Claims 1-2, 4-8

Claims 1-8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ishizuka et al. (US 6,771,235) in view of LeChevalier (US 6,943,500).

Applicant amends each of the claims and cancels claim 3.

Applicant submits that the amended claims are patentable over these references.

Ishizuka discloses a device for displaying images having the following features:

- an image display panel (11) that divides each image to be displayed into pixels or subpixels to which are allocated luminous intensity data, comprising:
 - an image display panel (11) comprising a first array (col. 6, line 54 : cathodes lines B1-Bn) and a second array (col. 6, line 53 : anodes lines A1-Am) of electrodes which serve an array of light-emitting cells (col. 6, lines 51-58: "E(m,n) ... arranged in matrix"), where each light-emitting cell is assigned to a pixel or subpixel of the images to be displayed and is powered for light emission between an electrode of the first array and an electrode of the second array effecting between them an intrinsic capacitor C_i (see fig. 1-6, 10, 14-15),
 - power supply means for generating a potential difference between two terminals (*implicitly inferred by the current sources 23i* : see col.7, lines 11-13 and col.8, lines 33-41),
 - drive means (13, 14, 12 : see fig.9):
 - a) adapted for successively connecting each electrode of the second array to one of the terminals of the power supply means (col.6, lines 62-67),
 - b) adapted for, during each sequence of connection of an electrode of the second array, simultaneously connecting one or more or even all the electrodes of the first array to the other terminal of the power supply means in order to allow the power supply means to power for light emission at least one of the cells linked both to the respective electrode of the second array and the respective electrode of the first array (col.7, lines 7-15), and

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c) adapted for, during each sequence of connection of an electrode of the second array, to modulate the duration of connection t'_{a1} of each electrode of the first array to said power supply means as a function of the luminous intensity datum of the light-emitting cell that is to be powered for light emission between this electrode of the first array and this electrode of the second array (figure 10, 11, Col.6 Line 40 – Col.7, Line 67).

According to the Office Action (end of page 3 of the Office Action – referring to Fig. 16, Col. 9, lines 15-35 of Ishizuka), Ishizuka discloses also that, during the sequence of connection of an electrode of the second array, a transfer of charge may occur towards each cell to be powered from the intrinsic capacitors of the other cells that are linked to the same electrode of the first array as the cell to be powered.

Ishizuka does not explicitly disclose that this transfer of charge actually allows this transferred charge to power for light emission the cell to be powered.

In the Office Action, it is acknowledged that Ishizuka does not disclose that this charge has been accumulated during a just prior/preceding sequence of connection of another electrode of the second array.

Further, Applicant asserts that Ishizuka does not disclose that the drive means is adapted for, during each sequence of connection of an electrode of the second array, modulating the duration of the transfer of charge t'_{a2} of the intrinsic capacitors of the other light-emitting cells linked to the same electrode of the first array as a function of the luminous intensity datum of the light-emitting cell that is to be powered for light emission between this electrode of the first array and this electrode of the second array according claims 1-2 and 4-8.

In fact, in Ishizuka, the "control PWM signal" allows the modulation of the duration of connection t'_{a1} of each electrode of the first array to the power supply means ... as a function of the luminous intensity datum of the cell that is to be powered. However, Applicant can find no evidence that the "control PWM signal" allows the modulation of the duration of the transfer of charge t'_{a2} of the intrinsic capacitors as a function of the luminous intensity datum of the cell that is to be powered, in the amended claims.

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In LeChevalier, all transfer of charges, even if these charges have been accumulated during a just prior/preceding sequence of connection of another electrode of the second array, does not allow the light emission of the cell to be powered, but only allows the precharge of the intrinsic capacitors.

Moreover, LeChevalier does not disclose any modulation of the transfer of charge as a function of the luminous intensity datum of the light-emitting cell that is to be powered for light emission.

Therefore, by applying the teaching of LeChevalier to the device for displaying images of Ishizuka, one skilled in the art cannot reach the claimed invention.

Consequently, claim 1 and dependent claims 2 and 4-8, which include at least all of the features of claim 1, are not obvious under USC 103 over Ishizuka in view of LeChevalier.

Further with reference to claim 4, Applicant asserts that Ishizuka (col.9, lines 20-27 and fig.18) discloses that the short "delay time" (see above) takes place between the PWM signal ON period and the PWM signal OFF period (see fig.18). If the "sequence" is defined, according to the wording of claims 1 and 4, as a sequence during which the switch 21_S is connected to the ground in order to allow the current source 23₁ to power the EL elements of the cathode line B_S ("sequence" = the whole scanning period), the PWM signal ON period is "at the start of a sequence," and the PWM signal OFF period is "at the end of a sequence." As the transfer of charge that is quoted in the Office Action, if any, would take place during the short "delay time," this transfer of charge does not take place "at the start of a sequence," as claimed in claim 4.

Because claim 4 includes the feature of the transfer of charge taking place at the start of a sequence and Ishizuka and LeChevalier do not disclose this feature, Applicant believes claim 4 is patentable and respectfully requests reconsideration.

Claim 9

Claim 9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ishizuka et al. (US 6,771,235) in view of LeChevalier (US 6,943,500) and further in view of Aziz et al. (US 6,811,896).

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Amended claim 9 depends on claim 8 and ultimately depends on claim 1. As such, claim 9 includes each of the features of claims 1 and 8, but further includes the feature of the organic electroluminescent layer having a thickness equal to or less than 0.2 μm .

As mentioned above with respect to other remaining claims and likewise with respect to claim 9, Ishizuka does not disclose a couple of key features. One is that Ishizuka does not disclose that the drive means is adapted for, during each sequence of connection of an electrode of the second array, modulating the duration of the transfer of charge t_{a2} of the intrinsic capacitors of the other light-emitting cells linked to the same electrode of the first array as a function of the luminous intensity datum of the light-emitting cell that is to be powered for light emission between this electrode of the first array and this electrode of the second array. Another is that Ishizuka does not provide that the "control PWM signal" allows the modulation of the duration of the transfer of charge t_{a2} of the intrinsic capacitors as a function of the luminous intensity datum of the cell that is to be powered, as claimed in the invention.

As mentioned above with respect to other remaining claims and likewise with respect to claim 9, LeChevalier fails to disclose the features that Ishizuka omits to make the claims unpatentable. In LeChevalier, all transfer of charges, even if these charges have been accumulated during a just prior/preceding sequence of connection of another electrode of the second array, does not allow the light emission of the cell to be powered, but only allows the precharge of the intrinsic capacitors. Moreover, LeChevalier does not disclose any modulation of the transfer of charge as a function of the luminous intensity datum of the light-emitting cell that is to be powered for light emission.

In the current Office Action, Aziz is combined with Ishizuka and LeChevalier to specifically reject claim 9 in light of the fact that Aziz discloses "the luminescent region between the anode and cathode electrodes of the OLED" to be "usually less than 200 nm thick." (col. 1, line 56-58).

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However, notwithstanding the disclosure of a thickness range in Aziz, Aziz fails to disclose the features that Ishizuka omits to make any of the amended claims unpatentable.

Therefore, claim 9 is not made obvious by Ishizuka. in view of LeChevalier and further in view of Aziz.

As such, reconsideration of the rejection to claim 9 is requested.


Conclusion

In light of the above assertions and claim amendments, reconsideration of the rejections to each of the claims is respectfully requested.

If the Examiner has any questions or comments that would facilitate the disposition or resolution of the issues, he is respectfully requested to contact the undersigned at 609-734-6816.

It is believed that no additional fees are due in connection with this matter. However, if any additional fees are due, please charge them to Deposit Account No. 07-0832.

Respectfully submitted,
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